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January 24, 1978

List of Addressees

Gentlemen:

Enclosed is the Ocean Current Measuring Program status report for August, September, and October 1977. In accordance with the OCMP Agreement, the measuring stations were shut down in November. Late in August and early in September, the stations were affected by Hurricanes Anita and Babe. As discussed in the status report, the data recovery in the storms was reasonably good, but the conditions at the measurement sites were not too severe. A combined storm report for Anita and Babe is being prepared.

If you have any questions about the program, please call Dr. George Z. Forristall at (713) 663-2404.

Very truly yours,

K R Jordan

K. R. Jordan, Manager
Production Operations
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Enclosures

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OCEAN CURRENT MEASURING PROGRAM
STATUS REPORT
AUGUST, SEPTEMBER, AND OCTOBER 1977

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OCEAN CURRENT MEASURING PROGRAM STATUS REPORT

I. INTRODUCTION

This is the twenty-eighth of the periodic reports mentioned in Attachment "B", Paragraphs 1 and 2 of the OCMP agreement. It covers the status of the measuring stations from August 16, 1977 to November 16, 1977, and discusses system improvements and repairs made during that time span. In accordance with the OCMP agreement, the stations were shut down in November. The charts included in this report are not intended to be a data source as the scales are nominal and the automatic-calibration data cannot be read accurately off the compressed records. The charts are useful for determining which sections of data might be of interest. Those sections of data which are of interest can then be obtained in a more readily usable form.

II. GENERAL INFORMATION

Information pertinent to the interpretation of this status report is given in this section. Detailed information on the overall instrumentation system is contained in "OCMP: Station Configurations" by Dr. G. Z. Forristall and "OCMP: Report on Electronic System" by Mr. R. C. Hamilton.

The two stations of the OCMP are numbered as follows:

Station Number	Location
2	Eugene Island 331A
3	South Pass 62C

The former Station No. 1 was not operational for the 1977 season, but the station numbering has been left the same as in previous years to reduce confusion. The current meters at all stations are numbered from the top (nearest the surface) meter downward. The meters are aligned so that the x-channel measures true north-south current speed and the y-channel measured true east-west current speed. Currents setting toward the north and toward the east give positive outputs.

The current meter depths at Stations 2 and 3 given in reports written before August 1975 are incorrect. The correct depths of all meters are given below in feet.

Station	Meter	Depth Below Top of Wave Staff	Nominal Depth Below MGL
2	1	55	12
	2	90	47
	3	145	103
	4	220	177
3	1	65	15
	2	124	74
	3	202	152
	4	302	252

Each station contains two 7-channel FM magnetic tape recorders. The recorder designated "current" contains data from Current Meters 1, 2, and 3, plus time. The recorder designated "weather" contains wind, wave, barometric pressure, and time data. Additionally, the "weather" recorders contain data from Current Meter No. 4. Each data tape is given a number which appears on the magnetic tape register and on the compressed time scale chart. When requesting data, the tape number, time and date of interest, data required, and details of the time and amplitude scales required should be included in the request.

At the beginning of each compressed time scale chart included with this report is a header which contains the "nominal" calibration for each channel. This same "nominal" calibration is listed on the magnetic tape registers and it will differ slightly from the actual calibration in most instances. The calibration values marked "automatic-calibration" on the compressed time scale charts are contained in the automatic-calibration sheets in Section VII of this report.

Channel seven of all recorders contains the time signal which consists of a negative pulse every minute and a positive pulse every hour. The clock also triggers the automatic-calibration circuit once every 24 hours. The automatic-calibration circuit is triggered

manually at the start and end of the tapes to synchronize the station clock with absolute time.

III. SUMMARY OF STATION OPERATION

The OCMP stations operated rather well during this reporting period and made measurements in hurricanes Anita and Babe. Both of the storms formed rapidly in the Gulf of Mexico with little advance warning. Anita then passed to the south of the stations late in August before going ashore in northern Mexico on September 2. Babe then formed in Anita's wake and after passing near OCMP Station 2 on September 4, she moved ashore near Morgan City on the morning of September 5. The maximum two-minute winds recorded at the OCMP stations during Anita were about 50 mph and the maximum wave at Station 2 was about 35 feet high. Maximum measured current components did not exceed one ft/sec. An excellent data set was recorded except for the loss of much current data at Station 2 due to a frozen recorder drive motor. However, the recorder did run for two short periods during the storm which permits a good estimate of the current history. Little data was recorded during Babe since the station batteries had already been run down during Anita. However, the data that was recorded indicates that Babe was very weak and conditions during Babe at Station 2 most probably did not exceed those measured in Anita. A combined storm report for Anita and Babe is in preparation. An account of the operational problems at the stations throughout the reporting period is given below.

A. Station No. 2 (EI331A)

1) From 1900 on September 1 to 1245 on September 2 and from 1710 on September 4 to 1630 on September 6, the station did not operate because of low voltage on the standby batteries.

2) From August 28 to September 9, the current recorder had a frozen drive motor. However, the recorder appears to have run for two brief periods of about 1 1/2 hours each starting at 0635 on August 30 and 1600 on September 1. Cross-correlations of wave staff and current meter records will be used to determine these times precisely.

3) Throughout the reporting period, current meter 3Y was noisy and its data suspect.

4) There were two small level shifts on the weather recorder on September 21 and 23.

5) From October 5 to 10, the O-ring drive belt on the weather recorder was broken.

6) There is no tape numbered 263C since the current recorder could not be repaired on the station visit of September 9. The recorder and tape were re-installed on September 13, but the new Mylar drive belt broke almost immediately after we left the platform. Thus, the recorder was started again with the same tape during the station visit of October 10 and the tape was labeled 264C.

7) All the current meters were increasingly noisy after October 10 and it is unlikely that any of the data is usable.

8) On November 7, the drive motor on the weather recorder froze, ending the tape. The current tape ran until the station check on November 12 when the station was shut down.

B. Station No. 3 (SP62C)

1) From 0215 on September 1 to 1130 on September 6, the station did not operate because of low voltage on the standby batteries.

2) The current tape was off the recorder heads from September 9 until September 21.

3) The gearbox on the current recorder froze on October 24, ending the last current tape.

4) The wave transducer failed on October 11 and was replaced on October 19. During this time span, some noise appeared on the wind direction signal.

5) Sometime between the October 19 and November 6 station checks, the recorded wind direction became incorrect. The precise time of the shift is not known.

IV. SYSTEM IMPROVEMENTS AND REPAIRS

A. Station No. 2 (EI331A)

1) September 9, 1977. We attempted to repair the current recorder by installing a spare drive motor and capacitor. The attempt failed because the replacement motor had an electrical fault. We then removed the recorder from the station for repair.

2) September 13, 1977. The rebuilt current recorder was installed.

3) October 10, 1977. A new hour pulse battery for the clock was installed since the hour pulses had become weak. The O-ring drive belt on the weather recorder and the Mylar drive belt on the current recorder were replaced.

4) November 16, 1977. The tape recorders were removed, but all sensors were left running.

B. Station No. 3 (SP62C)

1) September 9, 1977. A new wave staff transducer was installed.

2) October 19, 1977. The wave staff transducer was again replaced.

3) November 6, 1977. The tapes were removed and not replaced, but the tape recorders were left at the station and all instruments were left on.

V. CURRENT METER STATUS

All four current meters at Station 3 continued to work well up to the end of the 1977 phase of the OCMP. However, by October, the top three meters at Station 2 had all become very noisy. Since the probes and cables were all left in the water, an accurate assessment of the cause of the failures has not been possible.

G. Z. Forristall
Shell Development Company
Houston, Texas
January 19, 1978

OCEAN CURRENT MEASUREMENT PROGRAM

Shell Development Company

Houston, Texas

MAGNETIC TAPE REGISTER-WEATHER

STATION ET 331 (#2) TAPE ON 8/16/77 0941

TAPE NO. 262W TAPE OFF 9/9/77 0922

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT*		
		-40 percent	Center	+40 percent
1	Wave Height	80 ft (CREST)	40 ft	0 ft (TROUGH)
2	Wind Speed	0 mph	100 mph	200 mph
3	Wind Direction	0 deg.	202.5 deg.	405 deg.
4	Barometer	26.0 in. Hg.	28.5 in. Hg.	31.0 in. Hg.
5	Current 4X	20.0(S) fps	0 fps	20.0(N) fps
6	Current 4Y	20.0(W) fps	0 fps	20.0(E) fps
7	Time Signal	minutes		hours

GENERAL COMMENTS: Complete tape except from ~1900 9/1 to ~1245 9/2 and from ~1710 9/4 to ~1630 9/6 due to low batteries.

WAVE HEIGHT: Complete record.

WIND SPEED: Complete record.

WIND DIRECTION: Complete record.

BAROMETRIC PRESSURE: Complete record.

CURRENT METER 4X: Complete record.

CURRENT METER 4Y: Complete record.

TIME SIGNAL: Complete clock and Auto-Cal.

* Field tapes recorded at 0.03 ips IRIG FM low density.

OCEAN CURRENT MEASUREMENT PROGRAM

SHELL DEVELOPMENT COMPANY

Houston, Texas

MAGNETIC TAPE REGISTER-CURRENT

STATION EI 331 TAPE ON 8/16/77 0941

TAPE NO. 262C TAPE OFF 8/28/77 ~0400*

* STOPPED DUE TO FROZEN DRIVE MOTOR

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT*		
		-40 percent	Center	+40 percent
1	Current 3X	20 (S) fps	0 fps	20 (N) fps
2	Current 3Y	20 (W) fps	0 fps	20 (E) fps
3	Current 2X	20 (S) fps	0 fps	20 (N) fps
4	Current 2Y	20 (W) fps	0 fps	20 (E) fps
5	Current 1X	20 (S) fps	0 fps	20 (N) fps
6	Current 1Y	20 (W) fps	0 fps	20 (E) fps
7	Time Signal	minutes	0	hours

GENERAL COMMENTS: Complete to ~0400 8/28. Two short pieces after that time: ie from ~0635 to ~0815 8/30 + ~1600 9/1 & ~1720 9/1.

CURRENT METER 3X: Complete record.

CURRENT METER 3Y: Complete record with noise making date questionable.

CURRENT METER 2X: Complete record.

CURRENT METER 2Y: Complete record.

CURRENT METER 1X: Complete record.

CURRENT METER 1Y: Complete record except from ~1400 8/22 to ~1000 8/23 when signal was lost.

TIME SIGNAL: Complete Clock and Auto-Cal.

* Field tapes recorded at 0.03 ips IRIG FM low density.

OCEAN CURRENT MEASUREMENT PROGRAM

Shell Development Company

Houston, Texas

MAGNETIC TAPE REGISTER-WEATHER

STATION ET 331A (#2) TAPE ON 9/9/77 1042

TAPE NO. 2634W TAPE OFF 10/5/77 ~0915*

*O-RING DRIVE BELT BROKE

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT* -40 percent (CREST)	- Center	+40 percent (TROUGH)
1	Wave Height	80 ft	40 ft	0 ft
2	Wind Speed	0 mph	100 mph	200 mph
3	Wind Direction	0 deg.	202.5 deg.	405 deg.
4	Barometer	26.0 in. Hg.	28.5 in. Hg.	31.0 in. Hg.
5	Current 4X	20 (S) fps	0 fps	20 (N) fps
6	Current 4Y	20 (W) fps	0 fps	20 (E) fps
7	Time Signal	minutes		hours

GENERAL COMMENTS: Complete tape to ~0915 10/5 when O-ring belt broke. Level shifts in Chan. 1-4 at 20600 9/15, 20200 9/21, ~22230 9/22 & ~2013

WAVE HEIGHT: Complete record.

WIND SPEED: Complete record.

WIND DIRECTION: Complete record.

BAROMETRIC PRESSURE: Complete record.

CURRENT METER 4X: Complete record.

CURRENT METER 4Y: Complete record.

TIME SIGNAL: Complete clock and Auto Cal.

* Field tapes recorded at 0.03 ips IRIG FM low density.

OCEAN CURRENT MEASUREMENT PROGRAM

SHELL DEVELOPMENT COMPANY

Houston, Texas

MAGNETIC TAPE REGISTER-CURRENT

STATION EI 331 (#2) TAPE ON 9/13/77 1340

TAPE NO. 264C TAPE OFF 11/12/77 1530 *

* TAPE RAN OUT

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT*		
		-40 percent	Center	+40 percent
1	Current 3X	20 (S) fps	0 fps	20 (N) fps
2	Current 3Y	20 (W) fps	0 fps	20 (E) fps
3	Current 2X	20 (S) fps	0 fps	20 (N) fps
4	Current 2Y	20 (W) fps	0 fps	20 (E) fps
5	Current 1X	20 (S) fps	0 fps	20 (N) fps
6	Current 1Y	20 (W) fps	0 fps	20 (E) fps
7	Time Signal	minutes	0	hours

GENERAL COMMENTS: Tape stopped from 2300 9/13 to 1039 10/10 due to broken drive belt. Most data are unusable

CURRENT METER 3X: Complete record with good data.

CURRENT METER 3Y: Complete record but data are very noisy and probably unusable.

CURRENT METER 2X: Complete record but did not calibrate after 10/13. Data probably unusable.

CURRENT METER 2Y: Complete record but did not calibrate after 10/13. Data probably unusable.

CURRENT METER 1X: Complete reload but sensor appeared to fail at ~1900 9/13

CURRENT METER 1Y: Complete record with usable data.

TIME SIGNAL: Complete clock and AUTO-CAL.

* Field tapes recorded at 0.03 ips IRIG FM low density.

OCEAN CURRENT MEASUREMENT PROGRAM

Shell Development Company

Houston, Texas

MAGNETIC TAPE REGISTER-WEATHER

STATION EI331 (#2) TAPE ON 10/10/77 1039 CDT

TAPE NO. 264W TAPE OFF 11/7/77 ~0130 CDT ~0230 CST

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT* -40 percent (CREST)	Center	+40 percent (TROUGH)
1	Wave Height	80 ft	40 ft	0 ft
2	Wind Speed	0 mph	100 mph	200 mph
3	Wind Direction	0 deg.	202½ deg.	405 deg.
4	Barometer	26.0 in. Hg.	28.5 in. Hg.	31.0 in. Hg.
5	Current 4X	20 (S) fps	0 fps	20 (N) fps
6	Current 4Y	20 (W) fps	0 fps	20 (E) fps
7	Time Signal	minutes		hours

GENERAL COMMENTS: Complete tape until drive motor stops at ~0130 11/6/77

WAVE HEIGHT: Complete wave record.

WIND SPEED: Complete wind speed.

WIND DIRECTION: Complete wind direction.

BAROMETRIC PRESSURE: Complete barometric pressure.

CURRENT METER 4X: Complete record.

CURRENT METER 4Y: Complete record.

TIME SIGNAL: Complete clocks and Auto-Cal.

* Field tapes recorded at 0.03 ips IRIG FM low density.

OCEAN CURRENT MEASUREMENT PROGRAM

Shell Development Company

Houston, Texas

MAGNETIC TAPE REGISTER-WEATHER

STATION SP 62 C (#3) TAPE ON 8/16/77 1337

TAPE NO. 3576W TAPE OFF 9/9/77 1351

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT*		
		-40 percent (CREST)	Center	+40 percent (TROUGH)
1	Wave Height	80 ft	40 ft	0 ft
2	Wind Speed	0 mph	100 mph	200 mph
3	Wind Direction	360 deg.	180 deg.	0 deg.
4	Barometer	26.0 in. Hg.	28.5 in. Hg.	31.0 in. Hg.
5	Current 4X	20.0(S) fps	0 fps	20.0(N) fps
6	Current 4Y	20.0(W) fps	0 fps	20.0E fps
7	Time Signal	minutes		hours

GENERAL COMMENTS: Complete tape except from ~0215 9/1 to ~1130 9/6 when batteries ran down. Data are slightly noisy.

WAVE HEIGHT: Complete record.

WIND SPEED: Complete record.

WIND DIRECTION: Complete record.

BAROMETRIC PRESSURE: Complete record.

CURRENT METER 4X: Complete record.

CURRENT METER 4Y: Complete record.

TIME SIGNAL: Complete clocks and Data-Cac

* Field tapes recorded at 0.03 ips IRIG FM low density.

OCEAN CURRENT MEASUREMENT PROGRAM

SHELL DEVELOPMENT COMPANY

Houston, Texas

MAGNETIC TAPE REGISTER-CURRENT

STATION SP 626 (#3) TAPE ON 8/16/77 1337

TAPE NO. 357C TAPE OFF 9/9/77 1351

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT*		
		-40 percent	Center	+40 percent
1	Current 3X	20 (S) fps	0 fps	20 (N) fps
2	Current 3Y	20 (W) fps	0 fps	20 (E) fps
3	Current 2X	20 (S) fps	0 fps	20 (N) fps
4	Current 2Y	20 (W) fps	0 fps	20 (E) fps
5	Current 1X	20 (S) fps	0 fps	20 (N) fps
6	Current 1Y	20 (W) fps	0 fps	20 (E) fps
7	Time Signal	minutes	0	hours

GENERAL COMMENTS: Complete tape except from ~0215 9/1 to ~1130 9/6 due to low batteries.

CURRENT METER 3X: Complete record.

CURRENT METER 3Y: Complete record.

CURRENT METER 2X: Complete record.

CURRENT METER 2Y: Complete record.

CURRENT METER 1X: Complete record.

CURRENT METER 1Y: Complete record.

TIME SIGNAL: Complete clock and Auto-Cal.

* Field tapes recorded at 0.03 ips IRIG FM low density.

OCEAN CURRENT MEASUREMENT PROGRAM

Shell Development Company

Houston, Texas

MAGNETIC TAPE REGISTER-WEATHER

STATION SP62C (#3) TAPE ON 9/9/77 1433

TAPE NO. 3580 TAPE OFF 10/10/77 1333

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT*		
		-40 percent (CREST)	Center	+40 percent (TROUGH)
1	Wave Height	80 ft	40 ft	0 ft
2	Wind Speed	0 mph	100 mph	200 mph
3	Wind Direction	360 deg.	180 deg.	0 deg.
4	Barometer	26.0 in. Hg.	28.5 in. Hg.	31.0 in. Hg.
5	Current 4X	20 (S) fps	0 fps	20 (N) fps
6	Current 4Y	20 (W) fps	0 fps	20 (E) fps
7	Time Signal	minutes		hours

GENERAL COMMENTS: Complete tape. Slight high frequency noise on all channels.

WAVE HEIGHT: Complete record.

WIND SPEED: Complete record.

WIND DIRECTION: Complete record.

BAROMETRIC PRESSURE: Complete record.

CURRENT METER 4X: Complete record.

CURRENT METER 4Y: Complete record.

TIME SIGNAL: Complete clocks and Auto-Cal.

* Field tapes recorded at 0.03 ips IRIG FM low density.

OCEAN CURRENT MEASUREMENT PROGRAM

SHELL DEVELOPMENT COMPANY

Houston, Texas

MAGNETIC TAPE REGISTER-CURRENT

STATION SP62C (#3) TAPE ON 919177 1433

TAPE NO. 358C TAPE OFF 1013177 ~1100 *

* Tape Ran Out

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT*		
		-40 percent	Center	+40 percent
1	Current 3X	20 (S) fps	0 fps	20 (N) fps
2	Current 3Y	20 (W) fps	0 fps	20 (E) fps
3	Current 2X	20 (S) fps	0 fps	20 (N) fps
4	Current 2Y	20 (W) fps	0 fps	20 (E) fps
5	Current 1X	20 (S) fps	0 fps	20 (N) fps
6	Current 1Y	20 (W) fps	0 fps	20 (E) fps
7	Time Signal	minutes	0	hours

GENERAL COMMENTS: Tape was off heads from ~1530 9/9 to ~0100 9/21. Data are good when tape was on heads.

CURRENT METER 3X: Complete record when on heads.

CURRENT METER 3Y: Complete record when on heads.

CURRENT METER 2X: Complete record when on heads.

CURRENT METER 2Y: Complete record when on heads.

CURRENT METER 1X: Complete record when on heads.

CURRENT METER 1Y: Complete record when on heads.

TIME SIGNAL: Complete clock and Auto-Cal when on heads

* Field tapes recorded at 0.03 ips IRIG FM low density.

OCEAN CURRENT MEASUREMENT PROGRAM

SHELL DEVELOPMENT COMPANY

Houston, Texas

MAGNETIC TAPE REGISTER-CURRENT

STATION SP62C (#3) TAPE ON 10/10/77 1409

TAPE NO. 359C TAPE OFF 10/24/77 2/300

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT*		
		-40 percent	Center	+40 percent
1	Current 3X	20 (S) fps	0 fps	20 (N) fps
2	Current 3Y	20 (W) fps	0 fps	20 (E) fps
3	Current 2X	20 (S) fps	0 fps	20 (N) fps
4	Current 2Y	20 (W) fps	0 fps	20 (E) fps
5	Current 1X	20 (S) fps	0 fps	20 (N) fps
6	Current 1Y	20 (W) fps	0 fps	20 (E) fps
7	Time Signal	minutes	0	hours

GENERAL COMMENTS: Complete tape until gearbox purge at 1300 10/24. All data high some high frequency noise.

CURRENT METER 3X: Complete record.

CURRENT METER 3Y: Complete record.

CURRENT METER 2X: Complete record.

CURRENT METER 2Y: Complete record.

CURRENT METER 1X: Complete record.

CURRENT METER 1Y: Complete record.

TIME SIGNAL: Complete clock and Auto-Cal.

* Field tapes recorded at 0.03 ips IRIG FM low density.

OCEAN CURRENT MEASUREMENT PROGRAM

Shell Development Company

Houston, Texas

MAGNETIC TAPE REGISTER-WEATHER

STATION SP62C #3 TAPE ON 10/10/77 1409 CST

TAPE NO. 359W TAPE OFF 11/6/77 1140 CST

CHANNEL	SENSOR	NOMINAL FM TAPE ALIGNMENT* -40 percent (CREST)	Center	+40 percent (TROUGH)
1	Wave Height	80 ft	40 ft	0 ft
2	Wind Speed	0 mph	100 mph	200 mph
3	Wind Direction	360 deg.	180 deg.	0 deg.
4	Barometer	26.0 in. Hg.	28.5 in. Hg.	31.0 in. Hg.
5	Current 4X	20 (S) fps	0 fps	20 (N) fps
6	Current 4Y	20 (W) fps	0 fps	20 (E) fps
7	Time Signal	minutes		hours

GENERAL COMMENTS: Complete tape. wave transducer out ~1930 10/11 to 1017 10/19. Wind direction was incorrect at end of tape

WAVE HEIGHT: Complete except from 1930 10/11 to 1017 10/19. Transducer failed during that period.

WIND SPEED: Complete wind speed.

WIND DIRECTION: Complete wind direction; however, data are suspect as direction was incorrect when tape removed.

BAROMETRIC PRESSURE: Complete barometer.

CURRENT METER 4X: Complete record.

CURRENT METER 4Y: Complete record.

TIME SIGNAL: Complete clock and Auto-Cal.

* Field tapes recorded at 0.03 ips IRIG FM low density.